

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

1.(currently amended) A mobile communication system performing both radio communication to a mobile station and packet communication within the system, said mobile communication system comprising:

    a top node located at a boundary between a mobile communication network and a fixed network of an IP network system;

    a plurality of terminal nodes respectively to accommodate mobile stations thereunder;

    a plurality of intermediate nodes layered in a tree-shape connection structure and provided between the top node and the terminal nodes, the tree-shape connection structure having a network structure in which there is no redundant routes for IP packet flow to each terminal node,

    wherein each of the plurality of terminal nodes retains respective management information of a mobile station so that the management information of the mobile station is kept by only one related terminal node.

2.(previously presented) The mobile communication system according to claim 1, wherein, each plurality of intermediate nodes transfers user data either received from a node located in the network concerned, or received from a different network and addressed to the network, by use of a broadcast format to the terminal nodes, in which the user data is further transmitted to a mobile station subordinate to and managed by the terminal node, based on the management information.

3.(previously presented) The mobile communication system according to claim 1, wherein a parameter requesting to use a common traffic channel is contained in a connection request signal transmitted from the mobile station to the terminal node, and by use of the parameter, the terminal node secures a transmission path for transferring

the user data on the common traffic channel provided between the mobile station and the terminal node.

4.(previously presented) The mobile communication system according to claim 3, wherein an IP address assigned to the mobile station is further contained in the connection request signal, and the terminal node generates a management table having the IP address correspondingly to a number for identifying the mobile station, and the mobile station is managed on an IP address basis according to the management table.

5.(previously presented) The mobile communication system according to claim 1, wherein the terminal node comprises at least a function of managing the terminal location, a function of managing a communication path, and environment setting information necessary for establishing packet communication between the mobile station and the terminal node, and a message transmitted from the mobile station for generating the environment setting information is terminated in the terminal node.

6.(previously presented) The mobile communication system according to claim 1, wherein the terminal node is either a radio base station or a radio network controller.

7.(previously presented) A packet transmission method in the mobile communication system according to claim 1, the method comprising:

    a first processing procedure registering the location of the mobile station into the terminal node by setting up a signal transmission path between the terminal node and the mobile station;

    a second processing procedure setting a mobile communication environment; and

    a third processing procedure setting up a user data transmission path.

8.(currently amended) A mobile communication system transmitting information either addressed to or originated from a mobile station on a packet communication basis between hierarchically disposed nodes,

wherein the hierarchically disposed nodes are layered in a tree-shape connection structure having a network structure in which there is no redundant routes for IP packets to each terminal node,

a node disposed on the superordinate side in the hierarchy comprises a means for transmitting a packet in a broadcast format to nodes disposed on a subordinate side, and

a node disposed on the subordinate side in the hierarchy comprises a means for transmitting a packet to a predetermined node superordinate to the node of interest, according to information received from the mobile station,

wherein each of a plurality of nodes retains respective management information of a mobile station so that the management information of the mobile station is kept by only one related node.

9.(currently amended) A node included in a mobile communication system transmitting information either addressed to or originated from a mobile station on a packet communication basis between hierarchically disposed nodes,

wherein the hierarchically disposed nodes are layered in a tree-shape connection structure having a network structure in which there is no redundant routes for IP packets to each terminal node, and

each node comprises:

a transmission unit to transmit a packet in a broadcast format to nodes disposed on subordinate side in the hierarchy; and

a reception unit to receive a packet transmitted from a predetermined subordinate node,

wherein each of a plurality of nodes retains respective management information of a mobile station so that the management information of the mobile station is kept by only one related node.

10.(previously presented) The node according to claim 9, wherein

the transmission unit broadcasts a packet not addressed to a different system, and

when a received packet is addressed to the different system, the transmission unit transmits said packet either to the different system, or to a corresponding further superordinate node in the hierarchy.

11.(currently amended) A node included in a mobile communication system transmitting information either addressed to or originated from a mobile station on a packet communication basis between hierarchically disposed nodes,

wherein the hierarchically disposed nodes are layered in a tree-shape connection structure having a network structure in which there is no redundant routes for IP packets to each terminal node, and

each node comprises:

a first unit to transmit a packet to a predetermined superordinate node according to information received from the mobile station;

a second unit to manage location information of the mobile station; and

a third unit to transmit a received packet having been transmitted in a broadcast format from the superordinate node in the hierarchy, to either a mobile station or a subordinate node further, when the packet is addressed to the mobile station of which location information is managed by the second unit,

wherein each of a plurality of nodes retains respective management information of a mobile station so that the management information of the mobile station is kept by only one related node.